CLAIMS

1. A resin composition for a toner,

which contains a crystalline polymer having a melting point of 180 to 280°C and heat absorption of 25 to 150 mJ/mg at a melting point measured by a differential scanning calorimeter (DSC) and a non-crystalline polyester having a glass transition temperature of 30 to 80°C.

2. The resin composition for a toner according to claim 1,

which has heat absorption of 1 to 20 mJ/mg at a melting point measured by a differential scanning calorimeter (DSC).

3. The resin composition for a toner according to claim 1 or 2,

wherein an average particle diameter of crystalline particles observed by a polarizing microscope is 5 μm or smaller.

4. The resin composition for a toner according to claim 1, 2 or 3,

which has a haze value of 60% or higher measured by a method according to JIS K 7105.

5. The resin composition for a toner according to claim 1, 2, 3, or 4,

which has 30°C or less difference of the recrystallization initiating temperature Tic and the recrystallization peak temperature Tpc measured by a differential scanning calorimeter (DSC).

6. The resin composition for a toner according to claim 5,

wherein recrystallization initiating temperature Tic is 80°C or higher.

7. The resin composition for a toner according to claim 1, 2, 3, 4, 5 or 6,

which, when 5% shear strain is applied at 190°C, has 15 to 90 change rate D of the relaxation modulus defined by the following formula (1):

$$D = (1 - G_{5\%}(0.1) / G_{5\%max}) \times 100 \quad (1)$$

in the formula, $G_{5\%}(0.1)$ represents the relaxation modulus after 0.1 second from 5% shear strain application and $G_{5\%max}$ represents the relaxation modulus at the peak point of the relaxation modulus curve in a graph showing the time from the shear strain application in the horizontal axis and the relaxation modulus in the vertical axis.

8. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6 or 7,

which, when 450% shear strain is applied at 190°C, has -27 or higher slope K of the relaxation modulus curve observed after 0.02 seconds to 0.1 seconds from the moment of the shear strain application defined by the following formula (2):

$$K = \{Log(G(0.1)) - Log(G(0.02))\} / (0.1 - 0.02) \quad (2)$$

in the formula, G(0.02) represents the relaxation modulus after 0.02 seconds from the shear stain application and G(0.1) represents the relaxation modulus after 0.1 seconds from the shear stain application.

9. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7 or 8,

wherein, when 450% shear strain is applied at 190°C, the relaxation modulus G(0.1) is 30 to 3,000 Pa after 0.1

seconds from the shear strain application.

10. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8 or 9,
wherein the crystalline polymer has a weight average molecular weight of 30,000 to 300,000.

11. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10,
wherein the crystalline polymer is a crystalline polyester.

12. The resin composition for a toner according to claim 11,
wherein the crystalline polyester is polybutylene terephthalate.

13. The resin composition for a toner according to claim 11,
wherein the crystalline polyester is polyethylene terephthalate.

14. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10,
wherein the crystalline polymer is a crystalline polyamide.

15. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10,
wherein the crystalline polymer comprises a crystalline polyamide and a crystalline polyester.

16. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 or 15,
wherein the non-crystalline polyester is obtained by

polymerization of a monomer mixture mainly containing terephthalic acid and neopentyl glycol as well as ethylene glycol and/or 1,4-butane diol.

17. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 or 16,

wherein the non-crystalline polyester comprises a non-crystalline polyester with a weight average molecular weight of 3,000 to 20,000 and a non-crystalline polyester with a weight average molecular weight of 30,000 to 300,000.

18. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 or 16,

wherein the non-crystalline polyester contains 90% by weight or more of the non-crystalline polyester with a molecular weight of 1,000 to 300,000 and in the non-crystalline polyester with a molecular weight of 1,000 to 300,000, 40 to 90% by weight has a molecular weight of 1,000 to 20,000 and 10 to 60% by weight has a molecular weight of 20,000 to 300,000.

19. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 or 18,

wherein the crystalline polymer and the non-crystalline polyester are compatible with each other.

20. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 or 19,

which has a glass transition temperatures C (°C) satisfying the following formula (3) in relation to the glass transition temperature A (°C) of the crystalline

polymer and the glass transition temperature B (°C) of the non-crystalline polyester:

$$sA + tB - 2 \leqq C \leqq sA + tB + 2 \qquad (3)$$

in the formula (3), the reference character s represents the weight ratio of the crystalline polymer in the resin composition for a toner and the reference character t represents the weight ratio of the non-crystalline polyester in the resin composition for a toner.

21. The resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20,

which has an acid value of 1 to 30.

22. A toner,

which is obtainable by using the resin composition for a toner according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 or 21.

23. The toner according to claim 22,

which contains a low melting point compound having a melting point of 70 to 120°C.

24. The toner according to claim 23,

wherein the low melting point compound is a crystalline polyester.

25. The toner according to claim 23,

wherein the low melting point compound is a wax.